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The Transmutation of Self in Childhood

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THE TRANSMUTATION OF SELF IN CHILDHOOD

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This Dissertation submitted by Craig David Stevens in partial fulfillment of the requirements for the Degree of Doctor of Philosophy from the University of North Dakota is hereby approved by the Faculty Advisory Committee under whom the work has been done.

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ABSTRACT

The purpose of this study was to gather information regarding children's developing sense of self. Seventy children, ages three to seven years, were tested on three measures. In the first task, the children tried on a mask and answered questions about their identity while looking in a mirror. The second involved a group of conservation tasks where external objects, the child's body, or part thereof, were the objects in question. The third was a picture task where pictures of a person, a person wearing a mask, and an animal were compared and the children were asked to decide which two of the pictures were most alike. The results indicated that the three measures were not correlated with one another. The mask task seemed to separate the three and four year olds from the older children. The conservation tasks involving the child's entire body separated the 3, 4, and 5 year old children from the 6 and 7 year olds. The picture task also separated the 3, 4, and 5 year olds from the older children, and the more standard conservation tasks separated the seven year olds from the younger children. The results are discussed in terms of a theory of development of self identity. Based on a Piagetian framework, a hypothesis for a more global view of children's play is also presented.

CHAPTER I

REVIEW OF THE LITERATURE

There has been a great deal of anecdotal evidence to indicate that children "believe" in their make-believe enough to do very out-of-the-ordinary things. Every so often there is a newspaper account of a child falling from a window or building while trying to fly after reading or seeing Peter Pan or while pretending to be superman or spiderman. A further correlate of this phenomenon, as Brim (1976) mentions, is "the treasured stories and legends about metamorphosis in children, for example, Alice in Wonderland, Peter Pan and Snow White, which are especially poignant because they engage children's fascination with possible transformation of self" (p. 250). To what degree children "believe" in their ability to change into something or someone different than themselves, and whether there is a developmental sequence involved in this process formed the questions which were the instigation of this study. The broader purpose of this investigation involves children's understanding of themselves as separate psychological and physical entities whose basic properties can not magically change. It would seem to make sense that this kind of understanding of self would be influenced by the child's level of cognitive development and the way in which he understands the world.

The kind of understanding of oneself that is referred to here is one's sense of self as a single entity and as a causal agent. The

distinction made here is the same as the one made by Wylie (1961) in an extensive review of the Self-Concept literature. According to English and English (1958), the word "self" has two predominant meanings in psychology: (a) the self as subject or agent, and (b) the self as the individual that is known to oneself. The second definition is generally what is referred to as one's "self concept." The first meaning is the one that is intended here. The "sense of self" that is referred to is less involved with introspection than is self concept. It is more involved with the physical properties of the individual as well as the continuance over time of oneself as an entity.

After a review of the literature done on Self-Concept in the last 10 years, it was found that the research was heavily directed toward the constructs of ideal-self, perceived social self (how you think others perceive you), and measures of self-esteem and the variables which may effect one's self-esteem. Generally, the idea of Self-Concept was portrayed as how "good" or how "bad" you evaluate yourself. These kinds of studies do not address the issue of how one comes to know oneself as an entity, but begin by assuming that one does know oneself, and ask questions about how "good" oneself or others evaluate that self.

The idea of self as subject or agent seems to have been largely ignored. How one comes to know that one is a "self," and the extent of that "self," is a question that very few researchers have asked. The kind of question that is being asked here seems to be more basic than the questions addressed by most researchers in the area of Self-Concept. Whether knowing oneself as a "self" is a precursor to being able to evaluate oneself is not yet known. Perhaps research into the

development of one's sense of self might be related to research involving the locus of self esteem. If young children tend to evaluate themselves as others do, while older children have progressively internalized evaluations of themselves, then perhaps this may be indicative of a more well defined sense of self as the child grows older.

Witkin, Dyk, Faterson, Goodenough and Karp (1962) found that children's drawings of a person rated on a five point scale significantly correlated with how they performed on orientation tasks in the laboratory. Based on a number of measures, children who were classified as field-dependent generally produced unarticulated drawings, while children classified as field-independent generally produced a highly detailed drawing of a person. The authors imply that there is a connection between how differentiated one's sense of self is (drawing of a person) and how dependent upon the external environment is one's orientation. If children generally become more field independent as they grow older, then perhaps this is indicative of a more well defined sense of self. However, much more research is needed if the concept of sense of self is to be linked with the rest of the vast Self-Concept research.

This study investigated children's belief in their ability to be transformed into something or someone else. It also measured the child's level of cognitive development and whether the child's level of cognitive development was related to the extent to which he perceives of himself as transformable. If belief in the transformation of self and the child's level of cognitive development were related, then children's understanding of themselves may be linked to their cognitive development in terms of the world. Further, children's make-believe in general

may be understood as reflective of children's growing cognitive abilities and their growing understanding of the world.

Much of Piaget's work and theory is directed to the child's understanding of the world about him. The focus here involves the child's understanding of himself, both as a part of the world and as separate from it. Naturally, these two overlap, since much of the child's understanding of himself results from his interaction with the world. It may be generally stated that children interact with their world by either imitating, learning (both experiencing and understanding), or playing in their environment (Singer, 1973).

Theories of Make-Believe Play

There have been many reviews of children's play (Berlyne, 1969; Gilmore, 1966; Herron & Sutton-Smith, 1971; Klinger, 1971; Millar, 1968; Singer, 1973; Smilansky, 1968). Briefly, the current theories of make-believe or fantasy play fall into three categories: emotionally activated fantasy, preparatory or practice play for later life activities, and symbolic play as an extension of the child's general level of cognitive functioning. That there are three divergent theories of why children play has been a theoretical problem in the area of play for a long time. It may be that these divergent explanations of the origin of play occur because the authors view only some of children's play as meaningful and the rest as simply entertainment or "wasted time" (Singer, 1973).

The theory that children's play is an imitation of or practice/play for future life demands and events originated with Groos (1901). This theoretical viewpoint generally depicts play in terms of the

child's future, not his current situation. In this explanation, play is directly functional in terms of preparing for a job, getting married, raising children, etc. Children's play is a constant preparation to become an adult, in a very concrete sense. Certainly, some of children's play is imitation or practice play for upcoming events, but there also seems to be a large body of play activities which cannot be categorized along these lines. Pretending to be an animal or superman is not preparing the child for a possible future role. It is clear that children imitate adults. It is much less clear that this imitation is future directed and has implications for the child's career choice, etc.

Another theory of children's play is derived from psychoanalytic theory (Freud, 1958) and basically states that play is an extension of children's affective lives and that children use play to work out conflicts or problem situations (Millar, 1968). Again, it seems hard to deny that some of children's play is directed by their affective lives, but it does not appear reasonable to assume that the enormous variety of play activities that children engage in are all related to children's "real life" interactions with their parents or peers. Both of these theories of play focus on some aspects of play while ignoring others. Both are also based primarily on the content of play rather than the process or act of make-believe itself, regardless of content.

The third theory, generally attributable to Piaget (1962), focuses on make-believe (he refers to it as symbolic play) as a natural extension of the child's current level of cognitive functioning in the world. Piaget explains the advent of symbolic play by invoking the basic processes of thought, assimilation and accommodation.

Assimilation refers to the child's taking in information and fitting it into his already constructed schemes or action hypotheses. Accommodation is the development of new schemes or a modification of existing schemes in order to understand or categorize information that does not lend itself to direct assimilation. Assimilation involves fitting the world into the child's already established schemes. Accommodation involves changing the scheme to more closely fit the external world. Adaptive thought, bringing about the growth of intelligence, involves both of these processes. The closer their functioning is to being in equilibrium (i.e., with respect to the ratio of assimilation and accommodation), the more adaptive is the thought process. Intelligence, then, involves an equilibrium between the two processes, assimilation and accommodation. The closer these two are to being in equilibrium, the closer the child's understanding of the world will correspond to "objective" reality. Play, in this theory, is the occurrence of the primacy of assimilation over accommodation. In play, the child does not change his schemes to understand the world, he alters the world (via symbolic or make-believe play) to fit his already existing schemes. He assimilates the world to his viewpoint. If the world does not readily fit into his limited understanding, rather than change his understanding through accommodation, the child alters the environment through make-believe to fit his present conceptions. For Piaget, play is not a unique activity of the child, but fits readily into his theory of cognitive development as a corollary of the process of intellectual development. Singer (1973) supports Piaget's position, pointing out that it makes much more sense to view make-believe play as part of an overall

assimilation within a limited range of cognitive schemes than to postulate play as a defensive or conflict reducing behavior. Millar (1968), too, seems to agree with Piaget's position that make-believe play is really a process of thinking in action with real objects as props. It seems that make-believe play may be understood by examining children's cognitive development. Make-believe involving the transmutability of the self may also fit into this theory of cognitive development. Piaget's theory is currently the most clearly articulated and integrative of children's cognitive development.

Piaget's Theory of Make-Believe Play

Piaget's theory of symbolic play is most clearly illustrated in his book Play, Dreams, and Imitation in Childhood (1962). In this work, Piaget lists the usual criteria of play (an end in itself, spontaneous, pleasurable, lacking organization) and explains how they are all met by referring to play as simply a predominance of assimilation. All thought involves assimilation. Symbolic play is distinctive in that it subordinates accommodation instead of being in equilibrium with it. Symbolic play is related to adapted thought but it differs in degree of accommodation, forming one pole of the thought process. Imitation is separate from this since it does not involve symbolism, but repetition. For Piaget, symbolic play is mental assimilation while imitation is sensorimotor assimilation. Imitation is action oriented, with the child reproducing what has struck him, pleased him, or which he feels makes him more a part of his environment. Symbolic play differs since the symbols can move play in new directions, further and further removed from simple

practice. Symbolic play is representational: objects "stand for" other objects and the activities quickly expand beyond imitation into entirely new interactions.

After the age of two years, the symbolic function becomes more and more available to the child. The child leaves the stage of sensorimotor intelligence and enters into the realm of preconceptual representation where the symbols make up the very structure of the child's thought. The symbols allow expansion beyond imitation, but are egocentric in nature, and since they are unique to the child, not yet conventional in the sense of shared social signs. The image or signifier that is available to the child remains only within the scope of individual thought, while the sign is always social. This is what Piaget refers to when he speaks of the child's thought as being egocentric and why some of children's make-believe is incomprehensible to the adult. The child's individualistic symbols may have no meaning to an adult observer, or they may mean something very different to the child than they mean to the adult.

Freud hypothesized that symbolism arose because the content of the symbols was repressed. Groos (1901) hypothesized that symbolism arose because there is so much in the world that the child cannot yet understand. Both of these explanations are missing the point according to Piaget, since the formation of the symbol is not due to its content but to the very structure of the child's thought. In play, the object that the child uses as a symbol of something else becomes more than just a representation of that something else, it becomes its substitute, as if it actually were the symbolized other. In cognitive representation

(where there is an equilibrium between assimilation and accommodation) there is adaptation to the signified (i.e., what the object "stands for"), and the corresponding symbol-object is only one representative of a general class. In play, the symbol-object has a meaning and existence in and of itself. In cognitive representation the symbol remains symbolic, it "stands for" something else. For the child, the play symbol becomes a substitute, it "is" the other, not merely a representation.

From Piaget's (1962) point of view, symbolic play is not a unique case different from the child's other means of cognitive functioning. It simply is one form of thought, derived from the child's current level of cognitive structure. Symbolic play is distinguished from adapted thought in that it is not directed toward an understanding of a collective or "objective" truth, but to an individual truth whose aim is satisfaction of the ego. In this sense, because the child's thought is not directed toward a collective understanding, but to satisfaction of only the self, there is no reason to suppose that the child does not believe <u>in his own way</u> whatever he chooses to be real. The child seems to enjoy a private reality all his own that is believed in spontaneously, without reflection. As Piaget (1962) says, "the two to four year old child does not consider whether his [make-believe] symbols are real or not. For him it is a question that does not arise, because symbolic play is direct satisfaction of the ego and has its own kind of belief, which is subjective reality" (p. 168). This subjective reality gives rise to what Piaget refers to as a preconcept, where there is assimilation to a specific object without any generalization to all such objects. Later, from the age of four or five to about six or eight, preconcepts become

more generalized and tend toward operational concepts; generality is gradually achieved, and operations become reversible. During this time, the child's thought becomes less egocentric, resulting in a more generalized assimilation and an extension of accommodation.

Briefly, the sequence is as follows: (a) in the sensori-motor stage, assimilation and accommodation are always in the present without symbolic thought; (b) in the preconceptual stage, symbolic thought arises, allowing earlier assimilations and accommodations to be recalled and interfere with those of the present. Yet, the objects of thought are still only one particular object to another particular object and do not represent generalized classes as such; (c) in operational thought accommodation and assimilation are in equilibrium and classes or generalized schemas are compared one with another rather than just particular instances of each.

Cognitive Development as it Relates to the Sense of Self

During the stage of cognitive development which Piaget refers to as the sensori-motor period, the child's understanding of the world goes through a process of decentration. Simply stated, the child discovers that everything does not stem from himself and that objects have an existence which is independent of himself. The child gradually views the world in a less egocentric way and slowly realizes that there are other points of view besides his own. Obviously this process does not stop at the end of this period, but for the most part, Piaget directs himself to the child's understanding of the external world and only

briefly to the reciprocal process, whereby, if the world becomes separate from the child, then the child must become separate from the world.

For Piaget (1972), the young child does not really conceive of himself as a psychological entity whose thoughts, feelings, and motivations are separate from other people, or even from the physical world. An example is Piaget's (1962) reporting of his daughter (J) around age two. She "separated herself according to the images she saw of herself, into J. in the glass, J. doing that, and J. in the photo. [For her], the same individual [herself] can be comprised of several distinct persons, each person differing according to the clothes worn or the images presented in a mirror or a photograph" (p. 226). The young child does not view himself as having a consistent identity through time. The child cannot put the pieces together to form a composite whole. In cognitive terms, the child does not yet understand the concept of the individual elements comprising a general class, in this case, the class of self. The self is a class made up of all of the individual instances of a single person. The person wearing different clothes from day to day, standing up or sitting down, when they were an infant or when they were five, are all subsets of the class "self."

Piaget (1954) believes that the development of the concept of self follows from the child's discovery and understanding of a permanent universe. After attaining object permanence, the child no longer views himself as the cause of all external events, but his perception of himself as a causal agent separate from other things, represents a growing sense of self, both as opposed to other things and in a cause and effect relationship with them.

Piaget (1962) talks of this stage of development and the child's view of himself as one of "participation," where the child can directly identify one element with another, without understanding that the sum of the elements constitute a whole. The child recognizes objects as similar and can compare them on a one-to-one basis, but the concept of the sum of them forming a generalized class is still beyond him. The child's understanding of himself is not essentially different from the child's understanding of other objects, and the child's make-believe too follows the same pattern. The preconcept and the child's make-believe symbols are both based on a predominance of assimilation, without the accommodation that the objects form a general class.

Since Piaget's explanation seems to describe and account for the child's understanding of objects, his understanding of himself, and his propensity for make-believe, Piaget's theoretical stance gains stature. If the child's thought is operating at a certain level of development where assimilation predominates, then this same level of cognitive development should explain the child's symbolic play and conception of self. If, as Piaget asserts, the child's level of cognitive development precludes adult operations in dealing with the world, then it should also hold true for all of the child's mental operations, including the child's understanding of himself.

Much research has been done and much has been written about Piaget's theory with respect to cognitive development in terms of the child's interaction with and understanding of the world. There has been much less research in the area of the child's developing understanding of himself.

Experimental Evidence for a Developing Sense of Self

Theories of children's development of a concept of self as related to their developing cognitive abilities are generally lacking experimental evidence to support them. One study by Bell (1970), relates Piaget's theory to the development of other person permanence (not the self) as opposed to object permanence during the sensori-motor period. Bell found that the majority of children developed person-permanence with respect to their mother before they understood the concept of object permanence. The development of person-permanence did not always precede the development of object permanence however, and it was confounded with the quality of the attachment between mother and child. Though this study did not deal directly with the child's understanding of himself, it seems to imply that concepts about other people may appear before the analogous concepts involving inanimate objects. It must be noted though that other people and inanimate objects are both external objects and if the dimension of internal vs. external is more important than the dimension of people vs. inanimate objects, then Bell's study may not have implications for the development of an understanding of self.

Feffer and Gourevitch (1960) touched on the concept of self in their research investigating role-taking in children. They found that their role-taking task which involved taking the point of view of another, was positively correlated with both age and several Piagetian tasks. Even when the scores were controlled for age, the role-taking task was significantly related to the Piagetian tasks. Though their

work did not directly involve the children's sense of self, in order to think of ones self as an entity, one must be able to look at oneself as if from outside, as if one were another looking at oneself. The process of decentration thus may have implications for understanding oneself as well as the external world.

Murray (1969) did attempt to directly measure children's understanding of themselves in terms of conservation of their own bodies. His first and second grade subjects seemed to be acquiring conservation of mass, weight, and volume of a clay ball before they conserved these same qualities regarding their own bodies. Murray's data appear to contradict what one might expect from Bell's (1970) research, where babies gained person-permanence before object permanence, but as was said before, the more salient dimension may be internal/external rather than person/object.

A study by Guardo (1968) attempted to map a developmental sequence for the attainment of the concept of self. Her cross-sectional study of kindergarten through third grade children indicated that children tend to conceive of themselves first in terms of sexuality, followed by a sense of humanness, and then individuality. The children's sense of self as continuous over time was much less certain than the other three concepts and was postulated to be a later developing concept. This last result is interesting since it relates very well to what Piaget (1962) mentioned about his daughter when she did not understand that the individual instances comprise a composite whole.

Generally, the studies mentioned thus far have only skirted the question of the child's developing sense of self as it relates to the

child's cognitive development. Another area of research that also touches on the understanding of the child's sense of self is the work being done in the area of fantasy play and its relationship with cognitive development.

Gould (1972), in a large observational study of children's fantasy play in a naturalistic setting, found some developmental trends that lead to speculation about cognitive correlates. It was found that as a group, the three year olds "swung" more freely from reality to fantasy than did the four and five year olds. Gould's concept of "fluctuating certainty" also seems to reflect the distinctions between the age groups. Fluctuating certainty is defined as "the child's more or less frequent and transient inability to distinguish firmly between a pretend and a real danger" (p. 6). Many of the young children in Gould's study acted as if the pretend episode in which they were engaged confronted them with real danger. Many of their fear reactions to the pretend situation were not part of the fantasy and usually ended the "game." With the younger children in the sample, there was a good deal of fluctuating certainty, but beyond the age of three and one half to four, the amount of fluctuating certainty seemed to be more of an individual difference than a group trend. Gould makes a clear distinction between believing one's own make-believe to the extent of becoming fearful (gone around age 2 - 2½) and believing the make-believe of another to a sufficient degree to become scared. Three to five year old children would probably not scare themselves with their own fantasy, but might still get caught up in another's fantasy or in an interactional process. Gould views fluctuating certainty as a transitional step in the child's understanding

of the differences between real and make-believe. In terms of the child's understanding of himself, Gould's data seems to indicate that the child understands that his own self is not changeable via his own fantasy before he understands that he is unchangeable via others fantasies. The child might not scare himself after age 2½ with his own fantasy of being a witch. However, another's fantasy that portrays one as a witch may still be fairly real to the child of three or four.

Singer (1973), in a study of two to five year olds, seems to add additional information to Gould's research. Comparing a free play setting with a structured one, it was found that there was much more make-believe play in the free play setting. Within the free play setting, Singer found an increasing amount of make-believe play with increasing age from three to five years old. Singer did not attempt to distinguish how "real" the children's make-believe was, but simply noted that there was more of it with increasing age. The addition that Singer makes to Gould's study may be that while make-believe is becoming less "real" with increasing age, it is also becoming more abundant. Perhaps there is an elaboration of the symbolic function occurring such that make-believe play, rather than evidencing a lack of a stable concept of self, may serve to help the child differentiate himself and increase the stability of his concept of self.

Tizard, Phelps and Plewis (1976) also found an increase in symbolic play with age for three and four year olds, but the correlation between age and symbolic play was rather low (+.30) indicating again that a good deal of individual differences were confounding any possible developmental trends.

Aggernaes and Haugsted (1976) in a study of experienced reality in three to six year old children essentially found three year olds to be quite different from the older children. The three year olds exhibited a much greater tendency to experience imaginary items as being like real items, as well as a tendency for magical thinking. The children were questioned about four kinds of real items and two kinds of imaginary items. The children's responses to questions were rated on a scale of qualities of the objects (can it be touched, can it be seen, do others see it, etc.). Their scale indicated that the tendencies exhibited by the three year olds declined a good deal by the age of four or five and were gone for most of the children by age six. This would seem to indicate that the fantasy world of children under age four may not be very differentiated from their view of the real world. This too would seem to agree with the hypothesis that around age four, the world and self become more differentiated even though the amount of make-believe play engaged in may be increasing.

Schempp-Matthews (1977), working with four year olds, investigated whether children's fantasies were internally or externally generated. She found a fairly even balance between fantasy that was triggered by the external environment and that which was generated from within by the child. Though there is no data provided for other age groups, these results would seem to indicate that at least four year olds are readily open to fantasy play. Since, according to Piaget, symbolic play does not begin until the child is a year and a half or two years old, it would seem that between the ages of two and four, symbolic thinking increases rapidly. Before symbolic thought is available to the

child, his play is oriented only to physically present objects which only served to represent themselves. With the beginning of symbolic thought, the child can use one object to stand for another and compare a present object with one imagined. The child can also imagine himself as different from his present state of being through make-believe. According to Schempp-Matthews' study it seems that this process is operating very well by age four, since the child can equally draw from the environment or create his make-believe solely from imagination without the impetus of props.

Golomb and Brandt-Cornelius (1977) took research involving make-believe one step further and investigated the effects of make-believe on the conservation ability of four year old children. The experimental group of 15 nonconservers was given three sessions of symbolic play. The control group of 15 nonconservers was also given three play sessions but these were structured with puzzles, mosaics, and drawing. On conservation posttests, 13 of the children in the experimental group improved in conservation ability, four of these obtaining full conservation. Only one child from the control group showed any positive change toward conservation on the posttests. The authors argue that the same processes may be underlying both conservation and symbolic play. Both symbolic play and conservation involve reversibility and transformations. In conservation tasks, a ball of clay is transformed into a sausage shape, or a cup of water is transformed into a tall thin tube of water. In symbolic play, the transformation is imaginary but one object becomes another and is transformed into it. In conservation, the concept of reversibility is necessary to understand that the altered object can be

put back the way it was originally. In symbolic play, reversibility too seems to be present as a broom can turn into a horse and then back into a broom again. The authors hypothesize that symbolic play may be an important antecedent of operational reversibility. If this is true, it might also be true that symbolic play involving the self may be a precursor to the attainment of a stable sense of self.

Transmutation of Animals and the Self

De Vries (1969) in what has now become a classic study, attempted to investigate children's belief as to whether a living animal can change into a different animal and to what degree this change is believed by the children to be a real transformation. The subjects were 64 boys aged three to six years. They were shown an animal (cat) which then changed identity via a mask to either a dog or rabbit while remaining in the child's presence. The results showed a decrease in belief that the transformation was real with an increase in age. Other Piagetian tasks given the children (conservation of number, length and volume) correlated more strongly with generic identity constancy than did discrimination measures used to determine if the children could define and tell the differences between cats, dogs, and rabbits. De Vries concluded that constancy could not be attributed to acquisition of knowledge or discrimination ability but was evidence of the kind of cognitive changes discussed by Piaget. The measures of fear reaction to the animal also seemed to indicate the reality of the children's belief in the transformation which provides further evidence that the children's

experience of reality is different from the adult's because of a qualitatively different cognitive structure.

As a corollary to the main part of her study, De Vries (1969) investigated children's reactions to the experimenter and the child himself wearing an animal mask. She found that this human identity task was much easier for the children than the task involving the living animal, though there was an increasing disbelief in the transformation with increasing age of the child. There were some problems with this task, however, in that the masks were very unlifelike while the masks that the animal wore were very lifelike. This makes comparison between the two rather difficult. Another problem was that there were many more clues available to help decide if a man has turned into a wolf, as opposed to whether a cat has turned into a dog. Nevertheless, 23% of the three year olds and 6% of the four year olds failed to assert that they were not a real chicken or wolf while wearing the masks. Even with the unrealistic masks, the younger children were still somewhat uncertain that they could not change into an animal. Another problem with this portion of De Vries study was the scale which was used as a scoring system. The scale consisted of: (a) says he is not real chicken or wolf while wearing mask, (b) says E is not real chicken or wolf when E wears mask, (c) says E is neither real chicken nor real wolf, (d) says he is neither real chicken nor real wolf, (e) says E is not chicken or wolf, (f) and says E is neither chicken nor wolf. These distinctions seem to be rather fine for a three to six year old child to be making with any degree of understanding. A simpler scoring system and one which is more involved with the transformational nature of the situation might be more

appropriate. Perhaps if the masks were more realistic and some of the other human characteristics (clothes, arms, legs) were covered, the data for humans wearing a mask might be more similar to the data for the animal wearing a mask. As De Vries' data stand, they appear to support the hypothesis that the sense of self as unchangeable occurs prior to the attainment of the same concept regarding other living creatures. This seems to agree with Gould's (1972) observations of not believing ones own fantasies beyond the age of three, but still believing those of another. Murray's (1969) data seem to contradict these studies though, since on his conservation tasks the children were able to conserve a ball of clay more easily than their own body. This seems to question whether conservation of self and sense of self as unchangeable are different processes or occur at different ages or stages of cognitive development.

The Purpose of the Present Study

The present study seeks to extend De Vries' (1969) and Murray's (1969) work to measure children's understanding of both the transmutability of themselves and the conservation of their own bodies. Though it would seem that these two concepts would appear developmentally at different ages, except for Murray's single report, there are no data regarding children's development of conservation of self. The concepts of conservation of self and the immutability or stability of self do share some common elements. Both relate to possible changes in the body while trying to determine if the body has really changed either in mass, weight, length, or identity.

Sometime between four and seven years of age a change occurs in the way children think which provides them with a more adult perspective about whether objects or they themselves can be transformed into something different. It is also during this time that the child moves toward and enters the stage of concrete operations and begins to master the conservation tasks. It is hypothesized that there should be an age progression toward a more stable and unchangeable sense of self, along with an increased ability on the part of the child to conserve his own body. Conservation of external objects should be attained at a later age than conservation of self. It is not clear from the literature whether these concepts will be correlated with one another, but if they turn out to be, it would support a cognitive interpretation of make-believe regarding the self and allow the child's development of a sense of self to be understood in the same terms as the development of his understanding of objects in the environment.

The literature does seem to indicate that make-believe play may be connected to the development of cognitive abilities (Golomb & Brandt-Cornelius, 1977) and that some of Piaget's cognitive tasks may be related to the child's understanding of the transmutability of animals and the child himself (De Vries, 1969). Further investigation into the possibility of a connection between cognitive development, make-believe play, and the child's sense of self seems warranted. The following research was designed to add further information toward an understanding of a possible connection between the child's cognitive development, his make-believe play, and the development of his sense of self.

CHAPTER II

METHODS

Subjects

Seventy children were involved in the study, 14 from each of five age groups. The age groups were 3, 4, 5, 6, and 7 years old. The mean age, in months, for each of the age groups was: 44.1, 55.4, 64.2, 77.1, and 89.2. Sex was equalized within each age group. The younger children were from a day care center, the older children from the Grand Forks, North Dakota school system. For all of the children, a signed letter of permission was obtained from their parents, and no child was forced to participate. The children were chosen at random from those whose parents had given permission, until each of the age and sex categories were filled. Appendix A provides a copy of the permission letters which were sent to parents.

Materials

A bird-like mask with breast plate was used as the costume. It covered the children from head to mid-thigh, excluding the arms of the child (see Appendix B). Eye holes allowed the children to see themselves in a 24" x 48" mirror. The materials for the conservation tasks were: Play Doh clay; two sticks 24" long, one of which could be bent at two joints; an inclined plane measuring 24" long, 12" wide, and varying in height from 1" to 7"; a bathroom scale; and a polaroid camera. Five

sets of three drawings depicting a child, a child with an animal mask on, and an animal were also used. The pictures are depicted in Appendix C.

Procedure

Each child was interviewed individually with only the experimenter present. The experimenter was previously unknown to the children. There were three parts to the study. The first involved the child wearing a costume and looking at himself in a mirror. The second involved conservation tasks where both external objects and the child's own body were the objects of the conservation questions. The third part involved asking the child questions about pictures of people, animals, and people in animal costumes. All of the children in the study participated in all three sections. The three sections were always presented to the children in the same sequence; Part 1, Part 2, Part 3. Total experimental time with each child was 10 to 15 minutes.

Part 1 (Transformation of Self)

Each child was taken individually and asked a few questions about himself while looking in a full length mirror. The questions were: "What is your name? Are you a boy or a girl? How old are you? When you grow up will you be a mommy or a daddy?" The child was then asked, in the gender opposite to the response to the last question, "Could you be a mommy (daddy) if you wanted?" Then the bird costume was presented and the child was asked, "What is it?" If the child did not respond correctly, or didn't know, the child was told that it was a bird.

The child was then asked to put the costume on and look in the mirror. Then the experimenter asked: "What is that in the mirror? Is that you (child's name) or a bird? Are you a little boy (girl) or are you a bird?" If the response to the last question was "bird," then the experimenter asked the following: "Can you fly? (If yes) Let me see you fly. (If the child flaps his arms) I see that you're trying to fly, but you are still on the ground. (Wait for explanation) But don't birds fly?" Then the child was asked to continue looking in the mirror to insure that he was still viewing himself and asked, "If you are a bird, what happened to the little boy (girl) that was just here?" Finally, all children were asked, "Are you really a bird or are you just pretending?" The experimenter recorded the children's responses to each of the six questions pertinent to their wearing of the mask. The scoring sheet is provided in Appendix D. This part of the study was also tape recorded so that the children's responses could be double checked.

Part 2 (Conservation of Self and Objects)

Again, each child was interviewed individually. There were ten tasks to this part of the experiment. The order of presentation was randomly assigned to prevent any order effects. There were four conservation of length tasks, two involving external objects and two involving the child's body. Two wooden sticks were presented, one of which could be bent in a zig-zag fashion. The body correlate of this task was the child comparing his two legs in the mirror and then bending one and being asked again if they were still the same length or was one now longer than the other. The third conservation of length task

involved comparing two equal length sticks placed on a flat table and then placed on a wedge platform. The fourth task was very similar except instead of using sticks on the wedge, the child was asked to look in the mirror at his legs and then to stand on the wedge platform and again compare the length of his legs.

There were also four conservation of mass tasks. One involved clay, one used pictures of a child in several positions, and the two others involved the child's own body. A standard conservation of mass task was employed, with two equal balls of clay being compared, and then one of them being flattened into a pancake shape for a second comparison. A similar conservation of mass task was employed using the child's hands instead of the clay. The comparison was made between one hand being outstretched (pancake) and the other hand held in a fist (ball). The third conservation of mass task involved the child's entire body. The child compared him/herself in front of a mirror in a crouched position (ball) and standing upright with arms and legs spread outward (pancake). A possible problem was thought to exist in this third comparison however, since the child could not view himself in the two positions simultaneously. An additional method was thus devised where polaroid pictures were taken of a child crouched and extended so that a direct visual comparison was possible. This picture comparison constituted the fourth conservation of mass task and was considered an external task.

The conservation of weight tasks were also divided into one using external materials and one using the child's own body. For the external conservation of weight task, two clay balls were used with one being subsequently rolled into a sausage shape for a second comparison.

In front of the mirror, the child then stood on a bathroom scale, both in an erect position and while crouched down into a ball for a comparison of the weight of his own body. The format and each of the questions asked of the children for this part of the experiment are presented in Appendix E.

Part 3 (Continuity of Person)

Before the tasks of this section began, a brief pretest was given to insure that the children understood the concept of same and different. This pretest consisted of several matching tasks involving geometric figures. One example was the presentation of two squares and a triangle and the child was asked to point to the two which are the same. All of the children involved in this study understood the concept of same and different as assessed by this pretest. Following the pretest, the child was shown five sets of three pictures. The series of pictures all followed the format of one drawing of a person, one drawing of an animal, and one drawing of a person with an animal mask on. The order in which the animal, person, and costumed person appeared was randomized among the five sets of pictures. The child was first asked to identify each picture. After this description of the pictures, the child was asked to look at the pictures and decide in a forced choice which two were the same. If the child picked the two people pictures as the same, then it was assumed that the child understood the concept of continuity of person. If the child picked the animal and the costumed person as the same, then the child would seem to view the person as being able to change into an animal, or at least more like an animal

than like the person. The scoring sheet for parts 2 and 3 is provided in Appendix F.

Scoring

Part 1

Responses to Part 1 were scored as either a one of zero for each of the six questions which the child was asked while wearing the bird costume. The six questions were ordered in such a way that each succeeding question should be harder to score a one if the child understood that he had not become a bird but remained himself. The results section presents the outcome of a Guttman scalogram analysis to determine whether the questions were indeed ordered by difficulty.

Part 2

The children's responses to the tasks of Part 2 were scored on a pass-fail basis, depending on whether the child did or did not conserve. If the child did not volunteer an explanation, the child was asked, "why" following their initial answer. Each of the conservation tasks was scored separately.

Part 3

Responses to Part 3 were scored either 0 or 1, depending on whether the child preserved the person, choosing the two human figures, or whether the child chose the animal and the masked person as being the same. The range of scores on this section could thus vary from 0 to 5 for each child, since there were five picture series presented.

Experimental Design

Part 1

Children's responses across age groups were compared to determine if the age groups differed in their beliefs about the transformation of self. The Mann-Whitney U test was employed since the data were ordinal in nature and the age groups were independent of one another.

Part 2

The children's responses across age groups were compared to determine if the age groups differed in their ability to pass the conservation tasks. A Mann-Whitney U test was used for this analysis. A test was also performed across age groups comparing performance on the external and all the body conservation tasks. The external conservation tasks were also compared with only the three entire-body conservation tasks which used the child's entire body instead of just a part of the child's body. Both of these analyses employed the Wilcoxon Matched-pairs Signed-ranks test. A fourth analysis was performed within each age group, comparing performance on the conservation of weight with performance on the conservation of mass with performance on the conservation of length tasks. A Friedman two-way analysis of variance test was used for this analysis, since the data were ordinal and involved three related samples. A Spearman's rho correlation was also computed comparing the children's scores on Part 2 with their scores on Part 1.

Part 3

The children's responses to the continuity of person task were compared across age groups to determine if the age groups differed in the way they responded to this task. A Mann-Whitney U test was employed since the data were ordinal and the groups were independent. A Spearman's rho correlation was also computed comparing the children's scores on Part 3 with Part 1, and their scores on Part 3 with Part 2. A Mann-Whitney U test was used to test for sex differences on each of the three parts of the experiment.

CHAPTER III

RESULTS

Based on Mann-Whitney U tests, there were no significant sex differences in the way the children responded to any of the tasks in this experiment. All further analysis thus combined the sexes within each age group. The total score for each subject on each of the tasks is presented in Appendix G.

The scale which was developed for Part 1 (Transmutation of Self) was analyzed to assess whether children passing any specific item also passed all of the preceding items. A coefficient of reproducibility of .983 was obtained, indicating that the questions did form a reproducible Guttman scale. Table 1 presents the scale questions and the manner in which the children responded.

Using this scale as the basis of scoring the children's responses to Part 1, only one of the age groups was significantly different from the rest. The four year olds scored significantly higher (less stability of sense of self) than all other age groups (see Table 2). The average four year old responded that the image in the mirror was a bird, that it was a bird and not he when he was called by name, and that he was a bird and not a boy (girl). The average three, five, six, and seven year old said that it was a bird in the mirror, but did not deny their own name nor sex. The means and significance levels for each age group are presented in Table 2.

TABLE 1

PERCENTAGES BY AGE GROUP OF CHILDREN ANSWERING EACH QUESTION IN THE DIRECTION OF "BIRDNESS" TO THE QUESTIONS OF PART 1

Questions	AGE									
	Three		Four		Five		Six		Seven	
	N	%	N	%	N	%	N	%	N	%
1. Bird in Mirror	12	85	13	92	13	92	13	92	12	85
2. Bird over Name	5	35	13	92	8	57	6	42	6	42
3. Bird over Sex	1	7	7	50	4	28	4	28	3	21
4. Can Fly or Excuse for not Flying	1	7	6	42	0	0	2	14	1	7
5. Excuse for Vanished Boy/Girl	0	0	3	21	1	7	2	14	3	21
6. Really Bird and not Pretend	0	0	0	0	0	0	0	0	0	0

TABLE 2

MEAN AND MEDIAN SCORES PER AGE GROUP AND STATISTICALLY SIGNIFICANT DIFFERENCES BETWEEN AGE GROUPS ON PART 1

Age	Four	Five	Six	Seven
Three year olds $\bar{X}$ = 1.35 Mdn = 1.21	U = 29.5**	U = 72	U = 78	U = 88
Four year olds $\bar{X}$ = 3.00 Mdn = 2.50	--------	U = 49.5*	U = 49*	U = 44.5*
Five year olds $\bar{X}$ = 1.85 Mdn = 1.50	U = 49.5*	--------	U = 93	U = 110
Six year olds $\bar{X}$ = 1.93 Mdn = 1.37	U = 49*	U = 93	------	U = 88
Seven year olds $\bar{X}$ = 1.78 Mdn = 1.25	U = 44.5*	U = 110	U = 88	-------

** $p < .01$
* $p < .05$

Four additional three year olds who were tested on Part 1 refused to put on the mask. These four subjects were not included in the analysis since there was no way to give them a score on this task. Two of these children would not even allow the experimenter to put on the mask. No children in any other age group refused to participate.

On Part 2 (Conservation of Self and External Objects), a Mann-Whitney U test revealed that for total conservation scores, the seven year olds scored significantly higher than the six year olds ($U = 48$, $p < .05$), significantly higher than the five year olds ($U = 27.5$, $p < .01$), significantly higher than the four year olds ($U = 12.5$, $p < .01$), and significantly higher than the three year olds ($U = 10.5$, $p < .01$). On the average, the seven year olds passed nearly six of the ten conservation tasks while the other age groups passed three or less. None of the other age groups were significantly different from one another, although their means presented in Table 3 indicate a clear progression with age for these conservation tasks.

Several of the three year old children had to be tested twice on the conservation tasks. They initially responded in the affirmative to whatever the experimenter said last. This method of responding yielded a spuriously high score for these few children on the conservation tasks. Upon retesting, it was discovered that the children were indeed responding in this way. When questioned further, and the order of presenting the choice of answers was altered, their responses indicated that they were obviously not conserving.

TABLE 3

A COMPARISON OF NUMBER OF BODY AND EXTERNAL CONSERVATION TASKS PASSED

		Body Tasks		External Tasks		All Tasks	
Age	n	Number	Mean/ Median	Number	Mean/ Median	Number	Mean/ Median
Three	14	10	.71 1.00	3	.22 .64	13	.93 .70
Four	14	13	.93 .70	11	.78 .79	24	1.71 1.50
Five	14	15	1.07 1.10	14	1.00 1.00	29	2.07 1.50
Six	14	25	1.80 1.10	19	1.36 1.00	44	3.16 1.30
Seven	14	39	2.78 3.50	43	3.07 3.10	82	5.85 6.83
All	70	102	1.46 1.07	90	1.28 .81	192	2.74 1.64

Comparing the Body with the external conservation tasks, the only statistically significant difference was for the three year old age group ($T = 4$, $p < .05$), based on the Wilcoxon Matched-pairs Signed-ranks test. This difference was in favor of the body conservation tasks (i.e., three year olds conserved their body more frequently than they did external objects). However, as Table 4 indicates, the rate at which the three year olds passed the conservation tasks was very low. Out of a possible 140 passes, only 10 body and 3 external conservation tasks were passed. Three body tasks accounted for 9 of the passes and it was found that these three tasks were the ones that involved the child's entire body. The tasks using body parts (hands, legs) were not passed more often than the tasks which used external objects. A second analysis of external vs. entire-body conservation tasks was thus computed using only those body tasks which involved the entire child this time. For all ages combined, the difference was now highly significant ($z = 7.16$, $p < .001$). As shown in Table 4, broken down by age groups, the three year olds, five year olds, and six year olds were all significantly higher on the body tasks, and the four year olds approached significance. The seven year olds responses to the body and external tasks were still essentially equivalent.

The conservation of weight, mass, and length tasks were also compared for differences in pass rate by age group. Based on a Friedman Two-way Analysis of Variance, the rate of success was not found to be significantly different for any of the three conservation categories ($X^2 = 4.9$, N.S.). A Spearman's rho correlation was computed comparing the scores of Part 1 with the total conservation scores of Part 2. The

TABLE 4

MEANS FOR ENTIRE-CHILD AND EXTERNAL CONSERVATION TASKS ALONG WITH STATISTICAL DIFFERENCES BASED ON THE WILCOXON MATCHED-PAIRS SIGNED-RANKS TEST

Age	n	Entire-body tasks (Means weighted by 5/3) $\overline{X}$	External tasks $\overline{X}$	T	p
3	8	1.07	.22	2,	.02
4	10	1.30	.78	12,	.11
5	10	1.67	1.00	5,	.02
6	11	2.02	1.36	7,	.02
7	13	2.85	3.07	49,	N.S.

correlation was positive but low and not statistically significant (r = .17, N.S.). A Spearman's rho correlation was also computed comparing the entire-body conservation tasks with Part 1 scores. This correlation was also nonsignificant (r = -.005, N.S.).

Taken as a whole, the data from Part 3 (Continuity of Person) was unanalyzable by statistical methods. A large enough percentage (41%) of the children responded to the task in an unpredicted manner so that the scoring system became unusable for all children. Some of the children's responses were such that they did not fit into the numbered scoring system. An attempt was made to separate out the children who did respond in a scorable manner. The criterion used was whether the child's explanation of his answer referred to a general class rather

than specific features of the pictures (e.g., both animals or both boys was acceptable, while responses such as both have the same heads or both have pink dresses were deemed unacceptable). Using this criterion, the number of usable subjects fell to 41. These 41 children were comprised of 10 three year olds, 9 four year olds, 7 five year olds, 8 six year olds, and 8 seven year olds.

A Kruskal-Wallis One-Way Analysis of Variance was computed for this subset of 41 children, and significant age differences were found for the way these children responded on Part 3 ($H = 11$, $p < .05$). Using a Mann-Whitney U test to compare each age group with every other, it was found that the 3, 4, and 5 year olds responses were not significantly different from one another. As seen in Table 5, the six year olds responses were significantly different from the five year olds, from the four year olds, and from the three year olds. Likewise, the seven year olds were significantly different from the five year olds, from the four year olds, and from the three year olds. The six and seven year olds were not significantly different from one another. On the average, the six and seven year olds responded to the task in the same way, they preserved the continuity of person on four or more of the five tasks. On the average, the three, four, and five year olds preserved the continuity of person on only one or two of the five sets of pictures.

A Spearman's rho correlation was then computed using the subsample of 41 children to compare their scores on Part 3 with their scores on Part 1. The correlation was essentially zero ($r_s = .03$, N.S.). Spearman's rhos were also computed comparing the entire-body conservation tasks with Part 3 ($r_s = -.15$, N.S.) and the total conservation

TABLE 5

MEAN SCORES PER AGE GROUP AND MANN-WHITNEY U

FOR DIFFERENCES BETWEEN AGES FOR PART 3

Age	Mean/ Median	Four	Five	Six	Seven
3	3.80 4.50	U = 34	U = 26.5	U = 7.2**	U = 7.5**
4	2.66 4.50	-	U = 31.5	U = 21*	U = 21*
5	2.71 5.00	U = 31.5	-	U = 16*	U = 16*
6	.62 1.50	U = 21*	U = 16*	-	U = 32
7	.62 1.37	U = 21*	U = 16*	U = 32	-

**p < .05
*p < .10

scores with Part 3 (r = -.22, N.S.). Both of these correlations were in the expected direction, but nonsignificant.

Based on the significant differences between the ages on the various tasks, the tasks seem to order themselves by age, in terms of difficulty. The mask task (Part 1, Transmutation of Self) would seem to be mastered first, followed by the picture task (Part 3, Continuity of Person) and entire-body conservation tasks (Part 2), in turn followed by the external conservation tasks (Part 2). To determine if the tasks

were passed in this sequence for each individual child, the tasks were ordered into a scale. The median score for each task was used as the cutoff for passing the task. Only the 41 subjects who responded in a scorable fashion to Part 3 were included in this scaling attempt. Scaled in the order presented above, a coefficient of reproducibility of .872 was obtained. This outcome was considered conservative, since ordinal data were forced into nominal categories for the purposes of the scaling. It is also considered conservative since the number of subjects above and below the median was not always 50%, thus sometimes leaving less than half of the Ss passing a task. The occurrence of this lower pass rate in the tasks scaled first and second worked against the "goodness" of the scale since there were fewer "+"s on the first two tasks and more later on.

CHAPTER IV

DISCUSSION

Briefly, the results of Part 1 indicate that the four year olds responded differently to questions about their identity while wearing a mask than did any of the other age groups. The four year olds seemed to exhibit much more confusion about whether they could turn into a bird than did the other children. This task was not correlated with either the children's conservation scores (Part 2) or their scores on a picture task designed to measure continuity of person (Part 3). The results from Part 2 (Conservation of Self and External Objects) indicate that the attainment of conservation concepts about one's own body as a whole may occur earlier than these same concepts when the reference objects are ones hands or legs or when they are external objects. It was also found that the seven year olds differed significantly from the other age groups, demonstrating their increased ability to conserve. The results from Part 3 (Continuity of Person) seem to indicate that the six and seven year olds preserved the concept of humanness on this task significantly more often than the younger children in this sample. No sex differences were found on any of the tasks.

The hypothesis of a growing sense of self and a more differentiated concept of make-believe as opposed to "reality" is supported by the data from Part 1. The four year olds displayed a less stable sense of self on the mask task than the five, six and seven year olds. At

first glance, the three year olds responses, which were similar to the older children's, do not seem to fit into this explanation. However, several three year olds refused to participate in the mask task. These children were not less cooperative than other three year olds on the other tasks, but they refused to put on the mask. It seemed fairly clear that these children were afraid of the mask and afraid to put it on. If this type of fear can be attributed to the other three year olds, who nevertheless went along with the experimenter's wishes, then it may be that the three year olds who did participate in the mask task were too frightened to allow themselves to engage in any fantasy regarding the mask. Perhaps it was simply too scary for them to "play" this game. It was also noted that all of the three year olds seemed relieved to take off the mask after questioning, while a number of the older children wanted to remain wearing the mask and asked if there were other masks that they could wear. It may be that the three year olds accepted the possibility of the mask changing them, to an equal or even greater extent than the four year olds. The difference may have been that the three year old's fear of the situation overrode any tendency they had to engage in make-believe while wearing the mask. This fear threshold may have been higher for the four year olds, so that they could more easily allow themselves to "become birds."

In a discussion with the director of the day care center about this hypothesis, she mentioned that around Halloween, the four and five year old children really enjoyed putting on masks and pretending, but most of the three year olds did not like Halloween and seemed to be genuinely afraid of the masks and costumes. This fear theory is also

somewhat consistent with that portion of De Vries' (1969) study in which the experimenter and the children put on a mask. De Vries found that the three year olds were much more apt to believe that they could change into the character of the mask than the four, five, and six year olds when the children themselves were wearing the mask. Although the present study singles out only the four year olds, it seems reasonable that the real distinction is between the three to four year olds and the five to seven year olds. The evidence from Part 3 (Continuity of Person) also seemed to imply that the older children (this time the six and seven year olds) understood the concept of the permanence of the human form while the younger children had much more difficulty with this concept. This is not to say that there is a rapid transition point for any given child or even groups of children. The data here show a steady increase with age for both the conservation tasks and the picture tasks. What it does seem to indicate is that between the age of four and five, most children begin to more accurately differentiate their own being from other people and the inanimate world, and accept it as an essential and unchanging part of themselves.

If, as was hypothesized earlier, an increase in fantasy play marks this increasing process of differentiation, then the data seem to reinforce this notion. The three and four year old children seemed much more susceptible to the make-believe situation of putting on a mask. After this age, the concepts of conservation of bodily self and person permanence, despite an apparent transformation of the body and person, began to develop more fully. Most authors have written that fantasy play tends to decrease from age five onward, and yet it is not until

about age two that the symbolic function is developed to the extent that it becomes usable by the child to engage in fantasy play. It is between the ages of two and five, then, that fantasy play is at its height in children. It seems more than coincidental that the differentiation of self also seems to be occurring at this age and directly thereafter.

The results from Part 2 (Conservation of Self and External Objects) seem to indicate that the conservation of self may be more complicated than it initially seemed. The conservation of self as an entire entity may occur prior to the same kinds of conservation tasks involving external objects. However, the conservation of body parts (hands and legs) does not seem to be different from the conservation of external objects. Except for the seven year olds, younger children apparently sense themselves as unchanging entities, but when confronted with particular parts of themselves, they view these as they do external objects. The question, then, is not only self versus external conservation, but whether or not the child has integrated his body parts as part of the self. The problem seems to go back to what Piaget (1962) mentioned as the child's inability as yet to understand the concept of the sum of the parts comprising the whole. When the entire range of body conservation tasks (including body parts) is considered, body conservation does not appear to occur at an earlier age than conservation of external objects. But body conservation, involving only the child's entire body, is mastered at a younger age than is conservation of external objects. By the time the child is seven years old, this distinction disappears since the child can now conserve both his body and external objects to a much greater degree. It may be that body parts, as opposed

to the body as a whole, are conceptualized in a manner similar to external objects. By the time a child is seven years old, he can conserve body parts, since he can also conserve external objects at this age. For younger children, the entire body (but not body parts) is differentiated and understood while body parts and external objects are not yet conserved.

There were no significant differences in the number of children who were able to conserve length, mass, and weight. Theoretically, conservation of length, mass, and weight should appear developmentally in this order. These tasks were not so ordered in the present study, probably because of the young age of many of the subjects. The few conservation tasks that were passed by the younger children were scattered among the three conservation areas and were largely due to the conservation of entire-body tasks, of which there were three, one each involving conservation of length, mass, and weight. Generally, the great variability on these tasks for the younger children and the higher pass rate for the three entire-body tasks, than the more conventional external conservation tasks, accounts for the lack of significant differences between the three conservation areas.

The conservation tasks did not correlate with the mask task (Part 1). Earlier research (De Vries, 1969; Gould, 1972; Murray, 1969) seemed to indicate that these two areas might not be correlated if the ages at which the children mastered the two concepts differed too much. In this way, one task could be fully mastered before the other task began to get passed. Then no matter what score the child obtained on the second task, his score on the first task would always be the same so

that there could be no relationship between the tasks and the correlation would be zero. To some extent, this seems to be what has occurred here. Another explanation may be that the two areas are separately developing concepts, although the work of Golomb and Brandt-Cornelius (1977), who found that make-believe play sessions raised scores on conservation tasks, would seem to dispute this. More likely, it seems that the kind of self differentiation that allows the child to clearly separate reality from make-believe is an earlier developing concept than is conservation. It also seems to be an earlier developing concept than the concept of preservation of humanness as a general construct, if the third part of the present study can be taken as indicative of this. The picture task used here (Part 3) seemed to be tapping children's understanding of the preservation of humanness as an unchanging ability. On this task, the 3, 4, and 5 year olds were significantly different from the 6 and 7 year olds, while on the mask task (Part 1) the 3 and 4 year olds (if it can be conceded that the 3 year olds were too fearful to engage in make-believe in this setting) responded significantly different than the 5, 6, and 7 year olds. However, none of the tasks were significantly correlated with one another. This makes it difficult to suppose an underlying process of cognitive development which these tasks have in common. Nonetheless, they do seem to order themselves in terms of difficulty. When the children were divided into those who scored above and those who scored below the median score for each task, the tasks formed a reasonably reproducible scale (coefficient of reproducibility = .872). Table 6 presents the tasks in order, with the addition of the development of gender identity based on Kohlberg's (1966) study and the fact that

TABLE 6

POSSIBLE DEVELOPMENTAL SEQUENCE OF THE CHILD'S SENSE OF SELF, BASED ON KOHLBERG (1966) AND THE PRESENT STUDY

1. Gender Identity	2 and 3 year olds different from older children.
2. Mask on Self	3 and 4 year olds different from older children.*
3. Pictures of Human Transformation	3, 4, and 5 year olds different from older children.
4. Entire-Body Conservation	3, 4, and 5 year olds different from older children.
5. External Conservation	3, 4, 5, and 6 year olds different from older children.

*see text for explanation

only two children in the present study claimed that they could become an opposite sex parent when they grew up. As illustrated, gender identity seems to develop first, followed by the mask task, and then the picture task and the conservation of the child's entire body. Conservation of the child's body parts and external objects is a later developing ability.

However, it must be reiterated that the tasks in this study were not significantly correlated with one another. Though the scaling indicates that they are ordered in terms of difficulty, it does not indicate that one task is a precursor to the next task. It might be, as Golomb and Brandt-Cornelius (1977) suggest, that make-believe is a precursor to conservation, but the two still remain uncorrelated in this study, at least. The age difference between when the children attain the concepts

of each of the tasks would have to be almost completely separate. It could be argued that the conservation task was largely directed toward the six and seven year old children while the mask task was directed more toward the three and four year old children. The results would seem to indicate that this is the case. But if that is true, it leaves any possible relationship between the two open only to speculation.

The picture task (Part 3), which should occur between the mask task and conservation, was also uncorrelated with both. Perhaps though, with all of the difficulty encountered with the scoring of the picture task (Part 3) the results obtained on that section of the study should be treated with much caution. In any case, it would seem unwise to expect any kind of picture task to represent the child's sense of self. Although the preservation of humanness would seem to be related to one's sense of self, it appears that these concepts, at least as measured here, are not related. It would seem that the preservation of humanness in people in general is different from how one experiences oneself. "Self" may be a much more abstract concept than "human," in that the concept of "human" (as opposed to cat or horse) is a more easily definable category. Although the children could relate pictures one to another, they probably did not relate the concept of humanness to themselves. The children dealt with the specific pictures in a concrete manner and did not seem to make the conceptual leap that the concept applies to all humans including themselves. This would not be unexpected from preoperational children. The use of pictures with this age group may simply be asking too much from the children, since children of these ages tend to deal with concrete and specific objects without

generalizing them to classes of objects. To them, the pictures did not refer to anything but the specific object, animal, or person that each picture portrayed. To the adult, the pictures are symbols that stand for whole sets of objects. To the young child, the pictures do not represent a larger class but only a specific object or person (Piaget, 1962).

Generally, the results here do not specifically support nor dispute Piaget, but may add to his theory of cognitive development as it applies to the development of the child's concept of self. Pretending one is a bird in the mask task is indicative of a preponderance of assimilation occurring. Choosing the masked person and animal as the same on the picture task is one step removed from the live situation and the set of the task itself (choose two) forces the child toward using more adaptive thought. And, of course, to pass the conservation tasks, the child must be using both assimilation and accommodation on a more equal basis. The results seem to order these tasks in a manner that Piaget might predict based on the child's increasing equilibrium between assimilation and accommodation as he grows older. That the tasks are uncorrelated may indicate that they do not represent a continuous dimension. Each of the tasks is not a precursor to the next. But the lack of correlation does not preclude that there may yet be an underlying pattern of cognitive development that accounts for their order of difficulty. The rise of the symbolic function around age two essentially disrupts a kind of sensori-motor equilibrium that the child attained up to this point. Then through the ages of 3, 4, and 5, the symbolic function helps the child structure his world again, but this time relating

specific present with certain past experiences. The symbolic function allows a greater time lag between these comparisons, and also allows the child to distort and shape his reality to his own egocentric thought. As the child gets older, his thought becomes less distorting and more conventional in terms of shared realities with other people. Later still, as the child enters concrete operations, he begins to expand his comparisons between specific objects until he forms general classes of objects and the symbols he uses begin to represent a class of objects rather than one specific object.

The concept of self may follow this same sequence of development after the first differentiation of the self from the world, although it is at the same time easier and more difficult for the child. It is easier because the self is always present and it is through interactions of the self with the world that the child begins to understand the world. Objects in the world come and go as the child moves about, but his body and ego remain present. Thus, the self is an "object" with which the child has a great deal of experience. But the self would also seem to be more difficult to understand than an external object since it cannot be directly compared with itself in the present in the same way two cars or two blocks can be compared. An interesting speculation is whether the child compares himself with other people, perhaps peers or parents. Perhaps when a child is imitating others, he is trying to understand both himself and them. That the children are attempting to understand themselves as well as other people would seem to be a reasonable explanation for their imitation. Of course, it would also tie into Piaget's theory that young children act out their thoughts and rehearsals through

action schemes while older children and adults imitate and rehearse through imagination. Imitation in children may be an action schema that the children use to try and understand the world. It would certainly be of interest to measure developmentally children's tendency for imitation. Amount of imitation would probably be expected to be curvilinear much like the amount of fantasy play exhibited by children. It might steadily increase to a certain age and then begin to appear less frequently. If imitation too could be understood in terms of cognitive development and the child's increasing understanding of himself and the world, play in all its aspects could be united under one theory. The three theories of play; as a cognitive function, as practice (imitation) for future activities, as an emotional release, would all be subsumed under a theory of cognitive processing. Even the child's fantasy play that seems to be directed by emotional situations or conflicts could be related back to the child's attempts to understand himself in relation to other significant people in his environment. This is not to say that this activity is directed only to the child's understanding of himself, or that it is limited to the ages of from three to five. Fantasy based on emotionally charged situations and imitation are a continuing process used throughout life to cope with situations that one doesn't understand. But in terms of the child's sense of self as a permanent psychological entity, these processes (fantasy imitation and emotional discharge) all seem to come together during the ages of three to five as this concept is developing. It may be that the concept of self is a very rapidly developing concept around the age of three or four years. The child has great experience with himself, but until the rise of the symbolic

function it is difficult for him to compare himself with himself or others who are not present. All of the experimentation that the young child does with external objects he must do with himself. In a large part, this experimentation may be represented by make-believe play and imitation. Based on the present data, an increase in sense of self coincides with other data (Singer, 1973; Tizard et al., 1976) indicating an increase in make-believe play from ages three to five. In this study, conservation of ones own body also seems to occur during this time, while conservation of other objects doesn't appear until later. By age six or seven the children preserve a sense of humanness in pictures despite appearances of transformation. Between the ages of three and five the child's knowledge of himself seems to expand rapidly.

The child's understanding of his own gender constancy also seems to appear during the same age range as other measures of sense of self. The child's gender identity develops earlier, around age two, but children do not perceive this gender as something permanent and unchangeable about themselves until about age three. The children do not view a pictured person's sex as constant until about age six or seven (Emmerich, 1973; Kohlberg, 1966). So, in gender identity studies, too, the child's understanding of self occurs prior to his understanding of others.

Whether the child's fantasy play is important in the child's development of gender identity seems as yet unexplored. The possibility would certainly seem to exist. Perhaps what other authors have called practice play in children (dressing up, playing mother, father, fireman, nurse, etc.), may actually be classified more generally as make-believe and serve the same function for the child as pretending to be superman,

spiderman, or even a horse or dog. The classification of practice play may not even be a relevant category of play if there is no functional difference between these practice play episodes and other fantasy play activities. The distinction is from an adult point of view and even then based on content and relationship to a possible future reality rather than the child's current experience and dealings with the world.

Implications for Childcare Workers

There seem to be many implications of this view of play and of the child's conceptualization of self occurring prior to similar concepts about the environment. In terms of our understanding of children in general, it would be very parsimonious if a cognitive theory of development could account for the myriad behaviors that occur during the young child's life. An understanding of the way children deal with their world and the cognitive tools which they possess to help them do this, would be very beneficial to anyone trying to help children in either an educational or clinical setting. In a day care or educational setting, the Golomb and Brandt-Cornelius (1977) study, where increased fantasy play produced increased conservation abilities, would seem to point the way. During the ages of three to five, make-believe and fantasy play may be an important precursor to later conservation skills. Make-believe play might also help to more fully develop the child's sense of self and make him better able to cope with and understand social situations that might be different for young children. Make-believe and fantasy play could be encouraged with this age group to help the children consolidate their sense of self. Fantasy play could also benefit

the children as an aid in teaching them not only about themselves, but about the world in general. If make-believe helps the child understand himself and if an understanding of self precedes an understanding of the world, then both of these may be useful agents to help the child learn in any type of educational setting.

Since the use of allegory or metaphors is an effective technique in therapy with adults (desensitization), perhaps it is because it is analogous to fantasy play, an earlier mode of functioning (Singer, 1971). It is safer to try things out in fantasy and to think about an analogous situation to ones own in seeking an answer to a problem in living. Perhaps there is more involved than an escape from the pressures of the real situation. It may be that this process has served and continues to serve people throughout their lives.

Directions for Future Research

Looking back at this study, some comments for future work seem appropriate. Comparing the mask task used by De Vries (1969) with the children and the mask task employed here, it seems that we made things unnecessarily difficult for ourselves. Asking the children whether they turned into a wolf or chicken, as De Vries did, or a bird as was done here seems to be pushing this phenomena to the extreme. De Vries commented, and it applies here too, that the masks were not very realistic looking. She found this to be a problem in comparing the human transmutation task with the animal transmutation task. Here it was less of a problem and, in fact, the mask was intentionally not constructed to be very realistic. To present the children with a costume that would

visually transform them into a real-looking animal would defeat the intended purpose of this study. The question is not whether children can be convinced that they can change, but whether they themselves believe it at some time during the normal course of development. A realistic looking costume would not be representative of the child's normal play experience and, thus, not representative of the child's developing thought. Realistic-looking costumes simply are not available to children and it would be unreasonable to expect a child's reaction to one to represent normal cognitive development in the child. One way in which future research might move is to get away from animal masks altogether and use human masks. An old man and old woman mask might be a good example. This kind of change of identity might be easier for the children to get involved in and would certainly add a new dimension to the mask task. As an example of what we are asking children to do, suppose De Vries put a human mask on her cat instead of a dog or rabbit mask. Her results might be very different. Perhaps children acquire the concept that they can not change into an animal at one age, but they may still regard themselves as changeable within the realm of humanity. Another possibility might be to present the child with a choice of masks to try on. In this way, the children might select a mask that they could more easily pretend with than one arbitrarily chosen by the experimenter. It might also be interesting to see if children of different ages choose differently between animal and human masks. A choice would certainly seem to facilitate the child's freedom to engage in make-believe.

As presented, the mask task has little to do with the child's normal make-believe behavior. Usually make-believe arises spontaneously during play, sparked by either an external prop or the child's own thoughts (Schempp-Matthews, 1977). To bring a child into a room and ask him questions about himself and then have him try on a mask and ask more questions about him is a far cry from the child's normal experience of make-believe. Most of the children interviewed merely stood in front of the mirror and looked passively at themselves without moving. In day-to-day make-believe play activities, the children are usually very physically active. Allowing the child a choice of several masks and encouraging movement might help free the child to become more active since he would have a hand in deciding what the make-believe might be.

As was mentioned earlier, the questions asked of the children while they were wearing the mask formed a very good Guttman scale. No scoring or interpretation was necessary since the questions themselves represented the scale. It seems that the questions used could easily be modified for use with a different mask (even human) and a group of scales could be developed if a choice of masks were offered the child. If an experimenter wished to use a more relaxed free-play setting with the children, the scale questions could also be incorporated into a less formal conversation. Singer's (1973) research indicates that more make-believe occurs in a free-play setting than a structured one. Perhaps a free-play situation with masks available would be a good choice for further research in this area. In any case, the work done this far can only be considered inferential. Much more work in this area needs to be

done before a clear understanding of the development of children's sense of self is attained.

APPENDIX A

PERMISSION LETTERS SENT TO PARENTS

THE UNIVERSITY OF NORTH DAKOTA

Grand Forks 58201

Department of Psychology Telephone: (701) 777-3451

Dear Parent,

Often, during play, children pretend to be someone or something different than themselves. I am currently studying children's beliefs about their ability to become something other than themselves. Essentially, I am trying to discover how real children believe their make-believe to be. I will be working with children from age 3 to 8. With your permission, I would like to be able to talk with your child while he/she is at United Day Care. It will take about 15 minutes of the child's time, and no child will be forced who does not want to participate.

The study will involve trying on a costume and looking at oneself in a mirror. Questions will be asked as to whether he/she has changed into what the costume is, or whether they are still a boy/girl. Then a few tasks will be done to see if the child believes that body parts (hands, legs, arms) can change size. These tasks will be compared to similar ones involving common external objects. In this way, I hope to find out whether children understand concepts about themselves earlier or later than they do concepts about the external world.

Your child will at no time be endangered, and no intelligence or psychological testing will be done. We hope to make the experience enjoyable for the children. If you are willing to allow your child to participate, please sign below and return to United Day Care.

Thank you,

Craig Stevens, M.A.

Stevens' Make-believe Study

You may ask my child, _____ to participate.

Signed _____

Date _____

THE UNIVERSITY OF NORTH DAKOTA

Grand Forks 58201

Department of Psychology Telephone: (701) 777-3451

Dear Parent,

I am a graduate student at the University of North Dakota working on my dissertation project in psychology. I am doing a study on young children's beliefs about their ability to become something other than themselves. Make-believe or pretend occurs often in children's play and I am interested in how real this make-believe seems to the children themselves. I am working with children from 3 to 8 years of age. I would like to be able to spend about 15 minutes with your child while he/she is at Saint Michaels school. No child will be forced who does not want to participate.

The study will involve trying on a costume and looking at oneself in a mirror. Questions will be asked as to whether he/she has changed into what the costume is, or whether they are still a boy/girl. Then a few tasks will be done to see if the child believes that body parts (hands, legs, arms) can change size. These tasks will be compared to similar ones involving common external objects. In this way, I hope to find out whether children understand concepts about themselves earlier or later than they do concepts about the external world.

Your child will at no time be endangered, and no intelligence of psychological testing will be done. I hope to make the experience enjoyable for the children. If you have objections to your child participating in this study, please call me, Craig Stevens, at 777-3451 or the principal of St. Michael's school.

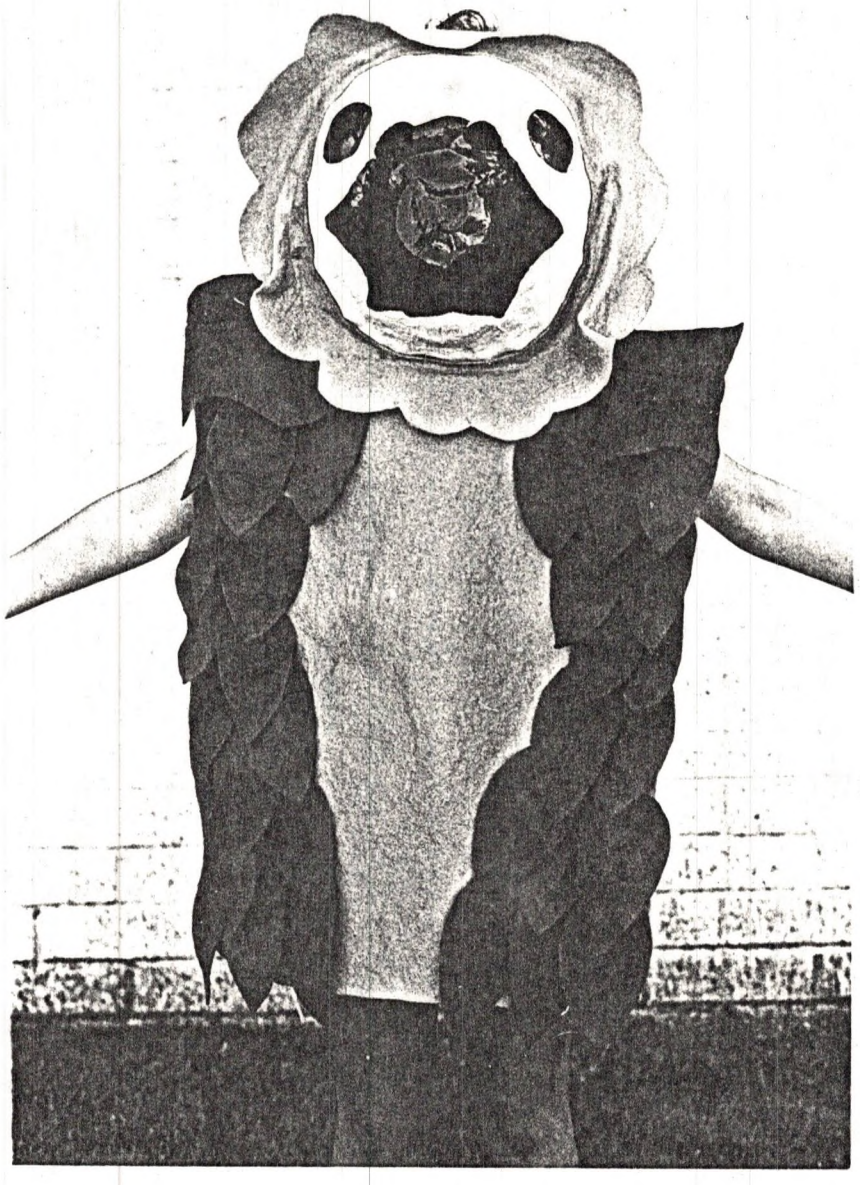
Thank you very much,

Craig Stevens, M.A.
Psychology Department
University of North
Dakota

APPENDIX B

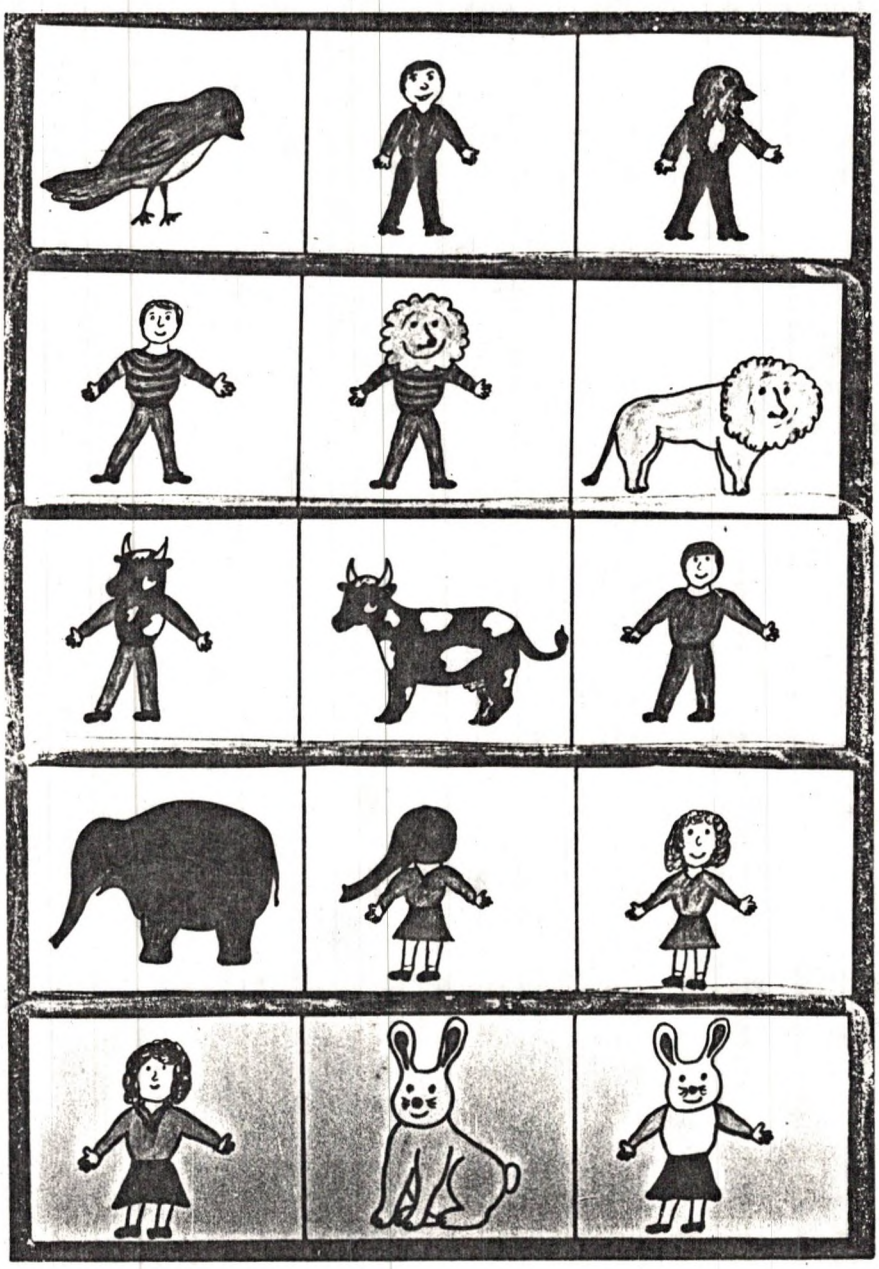
BIRD-LIKE COSTUME USED

IN PART 1



APPENDIX C

THE FIVE SETS OF THREE PICTURES USED IN PART 3



APPENDIX D

SCORING SHEET FOR PART 1

Scoring for Part 1

NAME _____ AGE _____

SEX _____

1.	Bird in mirror	Yes	No
2.	Bird over name	Yes	No
3.	Bird over boy/girl	Yes	No
4.	Can fly, or excuse for not flying	Yes	No
5.	Excuse for what happened to boy/girl	Yes	No
6.	Really a bird and not pretend	Yes	No

APPENDIX E

INSTRUCTIONS GIVEN AND QUESTIONS ASKED THE CHILDREN DURING PART 2 (CONSERVATION OF SELF AND EXTERNAL OBJECTS)

1. Sticks on Wedge. Stand two equal length sticks on a table directly in front of the child. Say, "Are these two sticks the same size, or is one longer than the other?" Wait for an affirmative answer. Then place the two sticks on the wedge, one at the top and one at the bottom. Say, "Now look at the sticks, are they the same size, or is one stick longer than the other?" Record response then ask "why?"

2. Child on Wedge. Have the child stand up and look at himself in the mirror. Say, "Look at your legs, are they the same size, or is one leg longer than the other?" Wait for the child to say that they are the same. Have the child stand on the wedge in front of the mirror. Say, "Look at your legs now. Are they the same size, or is one leg longer than the other?" Record response and then ask "why?"

3. Sticks that Bend. Line the two sticks up, straight, parallel to each other. Ask the child, "Are these two sticks the same length?" Wait for the child to say that they are the same. Then bend one stick in a zig-zag fashion. Then say, "now are the sticks the same length or is one longer than the other?" Record response and then ask "why?"

4. Legs that bend. Have the child stand up in front of the mirror. Say, "Look at your legs, are they just as long as each other, or is one leg longer than the other?" Wait for the response that they are the same length. Ask the child to stand on one leg with the

other bent at the knee. Say, "Look at your legs now. Are they just as long as each other, or is one leg longer than the other?" Record response and ask "why?"

5. Clay Ball & Pancake (Conservation of Mass). Present the child with two balls of clay and ask if he thinks the two have the same amount of clay in them. If not, change them or let the child change them until the child says they are equal. Add or take away as the child wants, but make sure they retain their round shape. Then flatten one ball into a pancake. Say, "Is there more clay here (point to ball), more clay here (point to pancake), or is there the same amount of clay in both?" Record response and ask "why?"

6. Child Crouched vs. Arms & Legs Spread. Have the child stand in front of the mirror, with arms and legs spread out. Demonstrate if the child does not understand. Then have the child crouch down into a ball and look at himself in the mirror. Say, "Was there more of you when you had your arms and legs spread out or when you were in a ball, or was there the same amount of you both times?" If the child does not seem to understand, have him stand spread out and crouched again, as you ask the question. Record response and ask "why?"

7. Fist vs. Outstretched Palm. Have the child extend both hands, open, with palms up. Demonstrate if necessary. Say, "Is there more of

you in one hand than the other, or are both hands just the same amount?" Wait for answer that they are the same. Then have the child make one hand into a fist while the other remains open. Say, "Now is there more of you in one hand than the other, or are both hands just the same amount?"

8. Clay Ball & Sausage (Conservation of Weight). Present two balls of clay and ask the child if he thinks that if you weighed them the two balls would weigh the same. Add or remove clay from one of the balls until the child thinks that they would weigh the same. Then roll one of the balls into a sausage shape and put it back on the table next to the ball of clay. Say, "What would happen if I weighed them now? Would this one (ball) be heavier, or would this one (sausage) be heavier, or would they weigh the same?" Record response and ask "why?"

9. Child Crouched vs. Standing Straight. Place a scale in front of the mirror and ask the child to stand on the scale, standing straight, looking at himself in the mirror. Then, tell the child how much he weighs. Then have the child crouch down into a ball, while remaining on the scale. (Don't let the child see the scale reading.) Say, "Do you think that you weigh more now, or less, or do you weigh just the same as you did before?" Record response and ask "why?"

10. Photograph Comparison. Show the child two photographs of a same sex child, one in which the child is standing with arms and legs spread out and the other with the child crouched down into a ball. Lay the photographs side by side and name the child saying, "These are two pictures of Billy (Sue)." Then say, "Is there more of Billy (Sue) in this picture, or in this picture, or is there just the same amount of Billy (Sue) in both pictures?" Record response and then ask "why?"

APPENDIX F

SCORING SHEET FOR PARTS 2 AND 3

NAME _____ DATE _____

SEX _____ BIRTH _____

AGE _____

ORDER _____

Length	1.	Sticks on wedge.....	Pass	Fail
	2.	Child on wedge.....	Pass	Fail
	3.	Sticks that bend.....	Pass	Fail
	4.	Legs that bend.....	Pass	Fail
Mass	5.	Clay ball and pancake.....	Pass	Fail
	6.	Child crouched vs. arms & legs spread.....	Pass	Fail
	7.	Hand in fist vs. outstretched palm.....	Pass	Fail
	8.	Child photographs.....	Pass	Fail
Weight	9.	Clay ball & sausage.....	Pass	Fail
	10.	Child crouched vs. standing straight.....	Pass	Fail

PICTURES

1. _____
2. _____
3. _____
4. _____
5. _____

0 = Humans

1 = animals

APPENDIX G

TOTAL SCORES FOR EACH SUBJECT FOR EACH TASK

				Conservation			
S	Sex	Age	Mask Task	Entire-Body	Limbs/Body	External	Pictures
1	F	3	1	0	0	1	4
2	F	3	4	1	1	0	5
3	F	3	1	0	0	0	5
4	F	3	1	0	0	0	5
5	F	3	0	2	2	0	4
6	F	3	2	1	1	0	4
7	F	3	2	2	2	1	1
8	M	3	1	1	2	1	5
9	M	3	1	1	1	0	5
10	M	3	1	0	0	0	3
11	M	3	2	0	0	0	2
12	M	3	2	0	0	0	5
13	M	3	0	0	0	0	5
14	M	3	1	1	1	0	1
15	F	4	2	2	3	1	0
16	F	4	2	2	3	2	5
17	F	4	5	0	0	0	5
18	F	4	1	0	0	1	5
19	F	4	2	2	2	1	5
20	F	4	4	0	0	0	0
21	F	4	3	0	0	0	2

				Conservation			
S	Sex	Age	Mask Task	Entire-Body	Limbs/Body	External	Pictures
22	M	4	2	1	1	0	0
23	M	4	3	1	1	1	0
24	M	4	4	1	1	1	3
25	M	4	5	1	1	1	4
26	M	4	2	0	0	1	5
27	M	4	2	1	1	2	5
28	M	4	5	0	0	0	5
29	F	5	3	0	0	0	5
30	F	5	3	1	1	0	5
31	F	5	2	0	0	0	5
32	F	5	1	2	2	2	0
33	F	5	1	2	2	1	5
34	F	5	3	1	1	0	5
35	F	5	4	1	1	2	0
36	M	5	1	1	1	1	0
37	M	5	1	2	2	3	5
38	M	5	1	1	2	2	5
39	M	5	2	2	2	3	4
40	M	5	1	1	1	0	4
41	M	5	2	0	0	0	0
42	M	5	1	0	0	0	5

				Conservation			
S	Sex	Age	Mask Task	Entire-Body	Limbs/Body	External	Pictures
43	F	6	2	2	3	3	0
44	F	6	1	2	3	3	5
45	F	6	5	1	1	0	0
46	F	6	2	3	5	4	0
47	F	6	1	0	0	1	0
48	F	6	1	0	0	0	0
49	F	6	1	1	1	0	5
50	M	6	1	2	4	2	5
51	M	6	2	1	1	0	5
52	M	6	5	1	1	0	5
53	M	6	3	1	1	2	1
54	M	6	1	3	5	4	0
55	M	6	1	0	0	0	0
56	M	6	1	0	0	0	5
57	F	7	1	3	4	3	0
58	F	7	1	2	4	4	5
59	F	7	2	0	0	2	0
60	F	7	1	0	0	2	2
61	F	7	1	2	3	3	0
62	F	7	4	2	4	3	0
63	F	7	5	1	1	3	1

				Conservation			
S	Sex	Age	Mask Task	Entire-Body	Limbs/Body	External	Pictures
64	M	7	1	2	3	5	5
65	M	7	1	2	4	4	0
66	M	7	2	1	1	0	0
67	M	7	4	3	4	4	5
68	M	7	1	3	5	5	0
69	M	7	1	1	2	2	3
70	M	7	0	2	4	3	0

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